Effectiveness of Highway Safety Public Education at Montana Motor Vehicle Division and Vehicle Registration Stations by Streaming a Variety of Safety Content

Task 3 Report

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Acknowledgments

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Table of Contents

List of Tables

List of Figures

Acronym List

AAA	American Automobile Association
CTO	County Treasurer Office
DMV	Department of Motor Vehicles
DOJ	Department of Justice
DOT	Departments of Transportation
DUI	Driving Under the Influence
FHWA	Federal Highway Administration
HD	High Definition (1080x720)
MDT	Montana Department of Transportation
MVD	Motor Vehicle Division
NHTSA	National Highway Transportation Safety Administration
PBIC	Pedestrian Bicycle Information Center
PDF	Portable Document File
PSA	Public Service Announcement
TV	Television
UHD	Ultra-high definition
USB	Universal Serial Bus

Project Background

As state departments of transportation look to eliminate fatalities and serious injuries as a result of initiatives such as Toward Zero Deaths, it is important to utilize a 4E approach (engineering, emergency management services, enforcement, and education) to improve safety. Educating the public about safety initiatives helps to improve an area's safety culture. Traffic Safety Culture is defined as the shared beliefs (including values, assumptions, etc.) of a group that affect behaviors related to traffic safety. Traffic safety culture strategies such as public awareness campaigns and safety videos are important ways to educate the public and possibly change their beliefs and influence their behaviors. These strategies can be used to convey the need and benefits for safety countermeasures (e.g., roundabouts and rumble strips), as well as the consequences of risky behaviors (e.g., texting while driving, driving while impaired, distracted driving, driving unbuckled, etc.).

The Montana Department of Transportation (MDT) finds value in educating Montanans about traffic safety. Therefore, this project focuses on showing safety videos during wait times at Motor Vehicle Division driver license stations and County Treasurer Offices. The project will also encompass an evaluation to identify if the strategy shows a change in traffic safety culture.

The objectives of this project are as follows:

- Identify and secure available safety content (as opposed to creating new content) and purchase and deploy the appropriate equipment to display safety content;
- Survey the public to determine if they are paying attention to the videos shown at the Motor Vehicle Division (MVD) driver license stations and County Treasurer Offices (CTOs); and
- Determine if the safety messages have an impact on the behavior of the viewing public.

This report covers Task 3: Deployment. This task included equipment purchase, video production, equipment deployment, video deployment, and staff training. More details for each subtask are provided in the chapters that follow.

Equipment Purchase

The Task 2 Report documented the proposed video display system equipment to be purchased. This system consisted of "off the shelf," consumer level products. The equipment was originally scheduled to be purchased and tested in the fall of 2020 with deployment to five locations in winter 2021. Due to COVID-19 outbreak levels and the potential effects on researchers, participants, and data collection; the research team and technical panel agreed to delay these dates to spring 2021 (purchase and testing) and early summer 2021 (deployment).

Changes from Recommendation in Task 2 Report

Given the pace at which technology changes, the presence of the COVID-19 virus, and supply chain limitations, there were challenges when it came time to purchase the equipment. In the time between initially identifying suitable equipment for the system (see Task Report 2) and making the actual purchases, there were some changes in the specifications of items, pricing and availability. None of the changes were enough to significantly impact the scope of the project or the budget but are detailed below.

Television (TVs)

The main challenge was the availability and pricing of the TVs. Typically, as new technology becomes available the price for the preceding technology drops as it becomes the standard and remains readily available. Ultra-High Definition (UHD) 4K resolution TVs became the standard. Due to high demand and limited or unpredictable availability, the price for both 1080 HD and 4k UHD TVs remained the same or increased. The 40" TVs increased in price by $25. Despite these challenges, there was no significant budget impact or delay in setting up, testing, and installing the systems. In the Task 2 report, a range of TV sizes was indicated. After discussions with staff at each site and restrictions in availability of products, two different size monitors were purchased, 40" and 50".

Media Player

At purchase time, a new media player with the ability to play 4K resolution video was available at a slightly higher price than the originally proposed 1080 High Definition (HD) media player. A sample was purchased and tested. Aside from being able to play video at a higher resolution, the 4K player provided no additional benefit or features beyond what the proposed 1080 player could do. In addition, the 4K player functionality was not as intuitive as the proposed player, the video playback was somewhat unstable and would freeze while playing videos, and the ability to play 4K video was beyond the needs of the project. For these reasons the 4K test model was returned and the proposed 1080 player was purchased.

System Purchase

A variety of retail and professional supply companies were checked for selection, pricing, and availability. Amazon and Costco warehouse were chosen as providers for all equipment. The choice primarily came down to price, quality, availability, and convenience. All of the equipment was purchased during the second week of April 2021.

The final system components and costs are shown in Table 1. The total cost for a system with a 40" TV was $442.96 and the total cost for a system with a 50 inch TV was $456.46.

Table 1: Summary of a Complete System as Purchased

Component	Brand-Model	Retailer	Price
LCD Smart TV	Vizio V-Series 40” 4k UHD LED LCD TV Vizio V-Series 50” 4k UHD LED LCD TV	Amazon	$305.5 $319
Digital Media Player	AGPtEK 1080 HD Digital Media Player	Amazon	$32.99
USB Power Cable	HUACAM USB to 3.5mm Barrel Jack 5V DC Cable	Amazon	3 pack $8.00 $2.7 each
HDMI Cable	Maximm High-Speed HDMI 2.0 4K Braided Cable	Amazon	5 pack $20.00 $4.00 each
Media Storage	SanDisk 8GB Cruzer Blade USB 2.0 Flash Memory Drive	Amazon	5 pack $19.91 $3.9 each
Lockbox	AC Thermostat Lock Box 8.5” x 2.9” x 5.6”	Amazon	$12.99
Wall Mount Bracket	SANUS Simplicity 22" - 55" Full-Motion TV Mount	Costco	$65
Hardware	Nuts to secure lockbox Cable cover	Home Depot	$5.00
Power cord/surge protector	3 Outlet Surge Protector 8’ Cord 900 Joules NX54314	Home Depot	$10.88
		Total for one system	**$442.96 (40”)** **$456.46 (50”)**

System Set-up and Testing

Each system was fully set up so that there would be minimal work needed to complete installation at each location. Optimal settings were set consistently between all systems. In particular, the settings ensured that the media player would draw power from the TV even if the TV was not turned on, the video would start playing automatically when the media player had power, and the video would loop continuously. These settings assured the system could display the video with minimal amount of work required from the office staff on site.

One unforeseen issue was a change in the size of the barrel plug power socket for the media player between the time of pilot testing and purchasing the complete set-up. The socket on the player had increased in size from 3.5mm to 5.5mm as shown in Figure 1. This meant that the Universal Serial Bus (USB) to barrel plug cable that had been ordered and tested previously would not fit. A new power cable with a plug size of 5.5mm was found and purchased from Amazon.

Figure 1: Different Sizes for the Barrel Power Plug Showing the Old 3.5mm and New 5.5mm

Prior to deployment in the field, the systems were operated for a minimum of one month by the researcher team. The systems were run both continuously for two weeks and on-off during office hours. Testing the system included pulling the power cord to simulate power outage and repeated on-off sequences.

Video Production

Initially four storyboard options, detailed in the Task 2 Report, were offered to the technical panel for review. From the four, two were selected for further development.

Storyboard Format

The storyboards were created in PowerPoint in order to develop a visual representation of what videos, graphics and other still images would be used in the final video loops. The order of the content and the timing could also be established. Using a storyboard allows for an easier pre-production decision and review process to be completed before moving to the video editing stage which consumes more time to make content changes and manage the review process.

The storyboard allowed for various production decisions to be made such as:

- Content for title and closing scenes;
- Choice of videos – represented by a single screen capture and a link provided to watch the video;
- Content use for information scenes or infographics;
- Content for trivia questions;
- Timing and sequencing of content; and
- Other topics such as photo credit, video and image captions and logo use could be discussed.

PowerPoint is not a tool specifically designed for creating a video storyboard, however, it was considered effective for this project for the following reasons

- Universally available in today's professional work environment;
- Easy to use for editing and review purposes;
- Presents an accurate representation of what the screen content will look like at various screen sizes;
- Provides space for production notes and review comments;
- Provides design tools that allow for basic/conceptual content creation;
- Slides can be exported to use as placeholders when creating the actual video timeline (e.g., information scenes and trivia); and
- The presentation file can easily be shared between members of the development and review team as a native file or portable document file (PDF).

The use of PowerPoint for pre-production worked well initially, but it was decided relatively early in the process that the storyboards be moved to the sequenced video production stage in order to get a better feel for the overall flow of information, timing of content and sequencing. One challenge of this early movement to video production was that video permissions had not yet been obtained and it was discovered late in the production process that two videos would not be granted

permissions and therefore could not be used.

Final Storyboard Content

From the Task 2 Report, the technical panel chose storyboards #1 and #4 for further development and updates.

Universal Updates

Some universal changes made to both storyboards included the:

- MDT logo was removed from the slides and added to the credits in the final slide;
- Montana Real ID video was updated to the latest version with Evel Knievel;
- Opening slide was changed from a generic Montana picture to the Montana Vision Zero logo;
- Generic photos were swapped out for infographics or trivia where possible;
- Closing slide was changed to include a thank you to the owners of the materials used in the storyboard;
- Timings were updated on the pictures (5 seconds instead of 10 seconds), infographics (5-10 seconds instead of 25 seconds), and trivia questions (from 5-10 seconds instead of 10-15 seconds); and
- Information was reordered.

Storyboard #1 Updates

Changes made to the storyboard #1 that were requested by the technical panel included:

- Removing the "Rumble Strips – Sweet Sound of Safety" video and subsequent trivia question as it was determined that sound would not be used, and it was felt that this video did not have the same impact without the use of sound;
- Replacing the MDT "What is a Roundabout" video with the Federal Highway Administration (FHWA) "Rules of the Roundabout" video;
- Replacing the MDT "Sober Friend" video with the new MDT "Gratitude" video;
- Adding the New York "Don't Crowd the Plow" video;
- Requesting that the "Embrace Life – Always Wear Your Seatbelt" video from storyboard #2 (see Task Report 2) be incorporated into this storyboard; and
- Removing the Colorado specific statistics from the "Motorcycle Safety" video as it would not change the flow or message of the video.

In addition to the requests above, the research team also:

- Obtained the original files for the MDT "Driving Under the Influence (DUI)" infographic and recreated it in a horizontal format to better fit the video specifications;
- Replaced two of the generic photos with a National Highway Transportation Safety

Administration (NHTSA) "Share the Freedom of the Open Road" infographic from storyboard #2 and a NHTSA "Move Over" infographic;

- Added the Emergency Responder Safety Institute's "Slow Down Move Over" video; and
- Removed items that did not receive copyright permissions (see permissions section below).

The final storyboard #1 can be seen in Appendix A and the final video loop created was 7 minutes and 5 seconds long and can be viewed here: https://www.youtube.com/watch?v=WquNEZ3Q1vM.

Storyboard #4 Updates

Changes made to storyboard #4 that were requested by the technical panel included:

- Adding trivia questions on centerline rumble strips;
- Adding the MDT Flashing Yellow Arrow video and related trivia questions; and
- Adding the Connecticut Department of Transportation (DOT) "Work Zone Safety" video.

In addition to the requests above, the research team also:

- Replaced generic photos with a NHTSA speeding infographic and the Find Me Driving "SAM I Am" Infographic;
- Replaced the current pedestrian video with one created by the Pedestrian Bicycle Information Center (PBIC) called "Understanding Crash Scenarios and Safe Behaviors to Help Prevent Them – Driver Passing a Bicyclist;"
- Added the MDT "Buckle Up – Enough Reasons" video;
- Replaced the "impaired driving" trivia with "texting and driving" trivia from storyboard #2; and
- Removed items that did not receive copyright permissions (see permission section below).

Donate Life Montana also requested information be incorporated into storyboard #4. While the technical panel felt that while this was an extremely important topic, the storyboard was focused on driving safely and these graphics focus on what happens when you do not. From a messaging perspective, the inclusion of this information did not work well. Additionally, the research team was trying to keep the length of the storyboard short for the surveying. Therefore, it was decided to not include this information.

The final storyboard #4 can be seen in Appendix B and the final video loop created was 5 minutes and 25 seconds long and can be viewed here: https://www.youtube.com/watch?v=g9RXi994ZbU&feature=youtu.be.

Copyright Permissions

With the intent of this project being to utilize materials that were already created, the research team needed to ensure that they had the correct permissions to use the information selected for the project. Any materials created by the research team, MDT or FHWA did not need additional permission, but all videos and infographics from other sources required copyright permissions. MDT did not have a standard permission form that they use, so the research team created a form

(see Appendix C) that was reviewed and approved by MDT communications staff. The research team individually contacted the owners of the materials to obtain permissions for its use in this project.

In some cases, permissions were not able to be obtained because the correct contact could not be found, the contact did not respond even with follow-up, the contact was unable to provide permission due to trademarks, permissions were provided after the deadline, or there was a fee associated with using the materials.

For storyboard #1, the following videos were removed from consideration because permissions could not be obtained:

- "Work Zone Safety is Your Responsibility" by National Asphalt Pavement Association;
- "Tips for Safe Winter Driving" by American Automobile Association (AAA); and
- "Embrace Life – Always Wear Your Seatbelt" by Sussex Safer Roads.

For storyboard #4, the following videos were removed from consideration because permissions could not be obtained:

- "There's No One Someone Won't Miss" by Transport Accident Commission Victoria;
- "Together We Can End Impaired Driving" by Foundation for Advancing Alcohol Responsibility);
- "Slow Down, Move Over" by New York State Department of Motor Vehicles (DMV) and
- "Use Caution Around Slow Moving Vehicles" by Iowa DOT.

Table 2 shows the details for the permissions obtained in Storyboards # 1 and #4. In addition to permission to use the videos, Colorado DOT provided permission to remove the short clip that showed Colorado specific statistics and Connecticut DOT sent an edited version of the video which removed the clips of their previous Governor.

Table 2: Storyboard #1 and #4 Permissions Obtained

Storyboard #	Title	Media Type	Permission From	Date
1	Cycling Safety Is Everyone's Responsibility	Video	Canadian Automobile Association South Central Ontario	6/25/21
1	Look Twice. Save a Life.	Video	Colorado DOT	6/30/21
1	Slow Down Move Over	Video	Emergency Responder Safety Institute	6/23/21
1	Don't Crowd the Plow	Video	New York State DOT	6/22/21
4	Slow Down for the Curve	Video	Clackamas County	3/23/22
4	Work Zone Safety	Video	Connecticut DOT	4/4/22
4	Understanding Crash Scenarios and Safe Behaviors to Help Prevent Them – Driver Passing a Bicyclist	Video	Pedestrian Bicycle Information Center	3/22/22
4	SAM I AM	Infographic	Find Me Driving	3/25/22
4	Railroad Safety - Rural Signs	Video	Colorado DOT	3/22/22

Final Loop

From a video production perspective, this was not a technically difficult project in that the source video content was already created. The primary task was to compile existing content into one compilation video. This is one of the reasons why it was considered feasible to move from the storyboard stage relatively early.

The software used for the editing was Camtasia. This choice was driven by two main considerations. First, the software is more readily available if there is any future work needed on the video files beyond the time of this project. Second, this software has a better interface for creating captions for the video and burning them into the final rendering.

One of the more time-consuming parts of this video production was the creation of captions that were to be "burned" into the video, in order to ensure that there was no option for them to be turned off. These are known as open captions which are an alternate to closed captions which can be turned on or off at the viewers discretion. It was considered important to have open captions as part of the video file given that the videos would be rendered without any sound. The process created some review delays while decisions were made as to whether the captions should be left in simple form with no grammatical editing, or to have partial or full grammatical editing.

As an anecdotal observation, it may be quite difficult to read the captions while looking and comprehending the visual information on the screen at the same time. The pace of the public service announcement (PSA) style videos can be quite fast. If the content takes effort to watch it

can be difficult to engage in. This may play a role in the retention of information.

Changes from Recommendations Made in Task 2 Report

Initially it was planned to include motion graphics for text that would be used in the trivia questions and some other scenes generated specifically for the video loop. However, it was determined that the motion would be more distracting than engaging and to add motion would unnecessarily add time to the overall video timeline. As such, the source videos were the only sections that had motion, all other content was left as still images.

Although the original intent for loop creation was to not to edit any existing video or graphic content, there were a few situations that caused a shift in this decision. Specifically, these situations included:

- Replacing text to match the tagline in a video;
- Reformatting an existing brochure layout to fit the 16:9 video ratio;
- Reducing the amount of text in a graphic so that it could be read on screen from a distance; and
- Cutting a statistic segment from one video that did not pertain to Montana.

There was consideration of creating a graphic with generic winter driving tips specific for this project, rather than using one from another state. The final decision was that the graphic was not needed.

Video Renders

Due to the early transition from storyboard production to video production, more renders than would be typical were created due to ongoing video substitutions, graphic selection, and sequencing. The rendered videos were uploaded to YouTube for review purposes only. The videos were set as unlisted, meaning that only a person with the exact link could view the video. When the review process was complete, the videos were deleted from YouTube.

The final video loop was rendered at HD resolution (1080x720), without audio and copied to the thumb drives. These were then added to each purchased system and set up to run continuously before deployment to validate that the system would work as intended.

Equipment and Video Deployment

The WTI Team's final five location recommendations for technical panel approval included:

- Motor Vehicle Departments (MVD): Billings, Bozeman, and Kalispell
- County Treasurer Offices (CTO): Gallatin County in Bozeman and Lewis & Clark County in Helena.

When given the go-ahead to move forward with the system installation, an email was sent to each of the five locations (in April 2021) to remind staff of the plan to install a video display TV, where within the facility it would be located, and to solicit information to help facilitate the installation of the TV wall mount bracket (guidance on this can be found in Appendix D: Guide TV Wall Mount). In the span of time that had lapsed since previous communications, three of the five locations (Bozeman MVD, Billings MVD and Kalispell MVD) had completed some level of remodeling. Additionally, the Helena site indicated concerns about visibility of the TV in the proposed location and restarted discussion about possible alternate installation locations within the waiting area. The manager for Gallatin County registration office also aired concerns about the unsettled nature of business operations in the Belgrade satellite office due to customers ignoring and acting out about COVID 19 restrictions and suggested that the main CTO office in Bozeman be used instead. The location change decision was made on July 1, 2021.

Coordination for equipment installation was different for each location as they all had their own protocols regarding who had the authority to provide approval for the work and who could complete the installation (specifically the wall mount prior to hanging the TV). Details for each location are provided in the following sections.

Billings MVD

A remodel within the Billings MVD facility took place while the project was on hold for COVID. The facility now essentially had three waiting areas and two entrances. This resulted in facility staff suggesting a new installation location. Referencing Figure 2, the location changed from the wall to the right to the rear wall. The opening in the wall to the right was part of the remodel and provided access to the exam area. This resulted in the location being less of a waiting area and more of an access way.

The bracket was shipped to Billings by the research staff on May 8, 2021 and was installed by facility maintenance personnel on May 18, 2021. The system installation, including a 40 inch TV, was completed on July 19, 2021 by research staff and took fifteen minutes including adding a cover for the cable. During installation, it became apparent that the new location was not ideal for customers to view the TV, especially due to the seating arrangement necessary for social distancing. The impacts of this location are discussed further in the Task 4 Report.

Figure 2: Video Display System Installed in Billings (MVD)

Bozeman MVD

While the project was on hold for COVID, the layout of this facility was changed. The Bozeman MVD staff indicated that the proposed installation location would not work, and an alternate was suggested. The research team visited and agreed that the location was suitable under the circumstances. Referencing Figure 3, the location was changed from facing wall on the right, to the rear wall.

The TV bracket was delivered to Bozeman MVD by research team on April 29, 2021. The installation of the bracket was completed by facility maintenance staff and confirmed by the research team on July 8, 2021. The system installation, including a 40 inch TV, was completed on July 16, 2021 by research staff and took fifteen minutes including adding a cover for the cable.

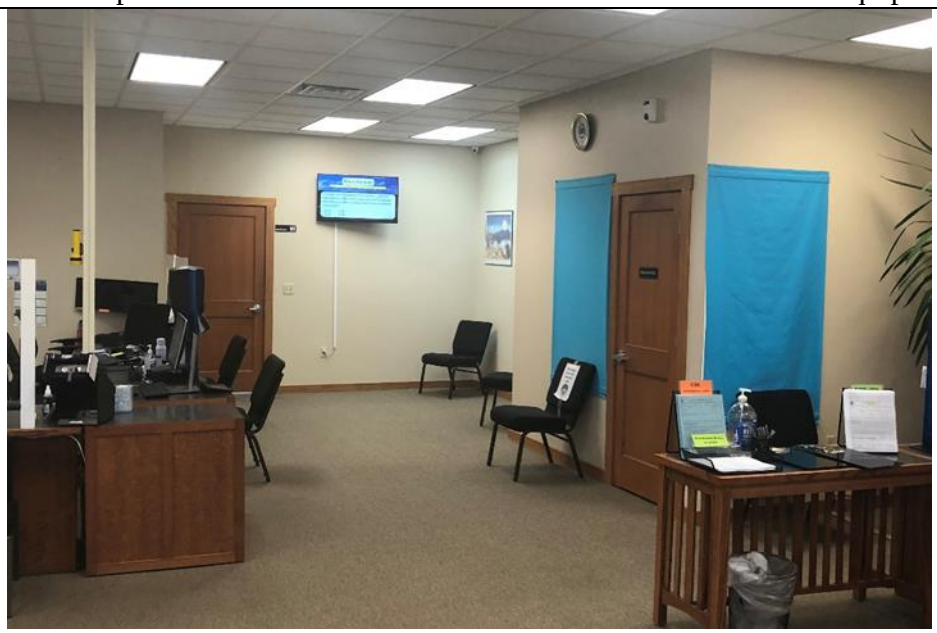


Figure 3: Video Display System Installed in Bozeman (MVD)

Kalispell MVD

A remodel within the facility took place while the project was on hold due to COVID. This resulted in a new installation location being suggested by the Kalispell MVD staff. Referencing Figure 4, the installation location changed from the wall on the right to the rear wall.

The TV bracket was shipped to Kalispell by research staff on May 15, 2021 and installed by office staff on May 21, 2021. The research team provided information to assist staff with the appropriate height for bracket installation. The system installation, including a 40 inch TV, was completed on July 21, 2021 by research staff and took ten minutes. The system was installed behind a reception desk and a clear plastic shield, so it was determined that a cord protector was not necessary.

Figure 4: Video display system installed in Kalispell (MVD)

Bozeman CTO

The change in location, from Belgrade to Bozeman, resulted in a delay in having the TV bracket installed as the Gallatin County office maintenance staff were understaffed. Once an installation date was identified, the bracket and system were delivered to the location by research staff on July 20, 2021. The installation of both the wall bracket and the 50 inch TV were completed by facility maintenance staff on July 23, 2021. Once notified of completion, the research team returned to power up the TV and make sure the video was playing and looping correctly. This location has a web camera found at https://www.ipcamlive.com/6047cf8055452 which was useful to the research team to check if the videos were playing periodically.

Figure 5: Video Display System Installed in the Waiting Area at Bozeman CTO

Helena CTO

The intended installation location within the facility was determined by the recommendation of staff at the location and the Department of Justice. However, when communications were restarted regarding installation, concerns were provided, asking "Who do you want to view the TV?" indicating that the clerks at the windows would be able to see the TV more than the customers. The research team requested alternate suggestions that would provide a better viewing angle. It was consequently decided to install the TV on a wall parallel to an existing 60" TV, but with a better viewing angle. This would mean that the TV was viewable by customers both waiting in line, and those sitting on the waiting bench facing the service counter.

The new installation location, see Figure 6, was confirmed and approved May 14, 2021 and the bracket was shipped to Helena May 20, 2021. Facility maintenance staff requested additional bracket installation information on June 16, 2021 and completed the installation on July 10, 2021. The system, including a 50 inch TV and cover for the cable, was installed by the research team on July 17, 2021 and took fifteen minutes. This location also has a web camera found at https://g1.ipcamlive.com/player/player.php?alias=5b633c65a034d&autoplay=1. The camera does not provide a view of the TV however, rather it is looking in the same direction as the TV.

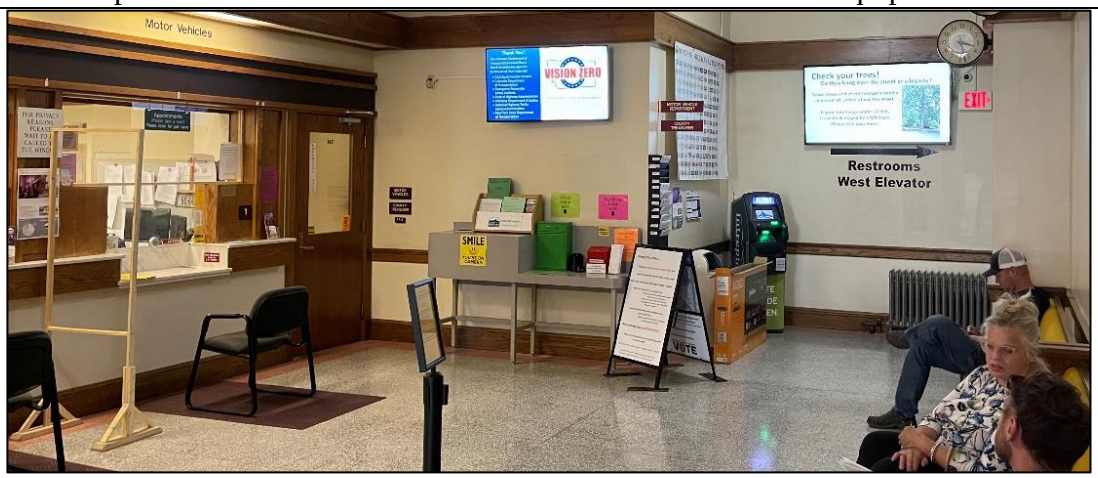


Figure 6: Video Display System Installed in the Waiting Area at Helena CTO

Video Loop Deployment

The video loop for storyboard #1 was deployed in July 2021 while equipment was being installed by the research team. This loop ran until it was replaced with the video loop for storyboard #2.

While the original intention was to change the video loops in January 2022, the COVID levels were elevated at this time and there was concern about the implications on customers, staff, researchers, and data collection numbers. Due to this, the technical panel approved a delay in the video loop change, and subsequent surveying, until April 2022 to allow spring when COVID levels tended to decrease.

To switch the video loop, the new loop was added onto a thumb drive and mailed to various research staff located near the MVD and CTO locations. The research staff simply needed to open the box at the back of the system using the key which MVD and CTO staff had, pulling out the old thumb drive, inserting the new thumb drive, using the media player remote to select the new video file and pressing play. The settings for the playback remained the same (i.e., auto playback and continuous loop).

Staff Training

Training office personnel on the use of the video display system turned out to be short and simple since most people are familiar with the operation of TVs and remotes.

A reference document was created by the research team to provide the locations with step by step start up instructions and basic trouble shooting, which can found in Appendix E: Guide Video System Operation. Using this as a guide, system components and basic operations were demonstrated to one member of staff at each location and two of the project survey staff. Several scenarios were demonstrated to simulate power outage, media player disconnection or TV input change.

Based on the simplicity of the system and settings in place to ensure auto play, all staff members indicated that they were comfortable with operating the system after only a few minutes. Contact information was included on the instruction document and attached to the system in case support was needed by any of the staff.

A packet was left at each location containing an extra copy of the operation guide, a key to the lockbox and the two remote controls, one for the media player and one for the TV.

It was determined by the research team and technical panel that no specific cleaning supplies would be provided. Basic information was provided to occasionally check for dust build up or marks on the screen that would interfere with the viewing of the videos.

System Support and Troubleshooting

Each location adopted their own process as to how to manage their system. Some chose to simply leave the system on at all times, and others chose to only run the system during normal business hours.

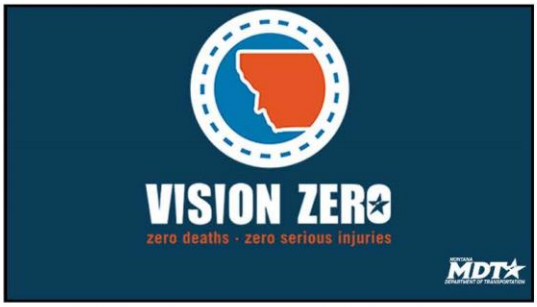
While there were no technical problems with the systems, there were two situations where assistance was required.

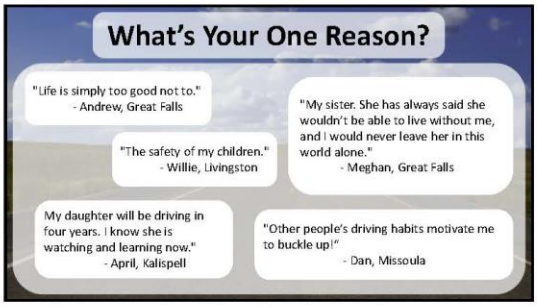
The Bozeman CTO location had a situation in which the system seemed to be shutting down over night. As this location had a web cam that provided a public online view of the waiting room and TV, the research team could check and see that the system was not operating. When this occurred, they could contact the location and have the system was restarted.

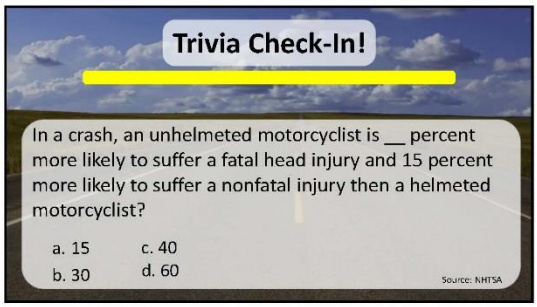
It was never fully determined as to why the system was shutting down. Possibilities included a staff member or janitorial service who turned it off at night or if there was a switch that controlled the wall outlet to which the system was connected. All cables were checked to make sure they had a good connection. At no point was there any problem in restarting the system. This could be done either by using the remote control, or the operation buttons on the back of the TV.

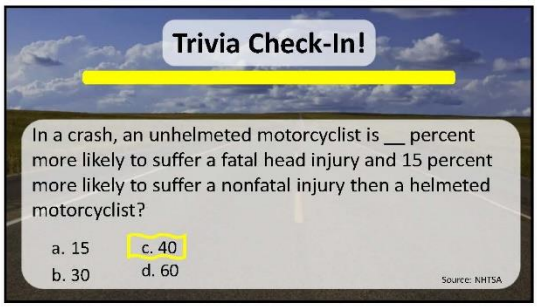
The Bozeman MVD contacted research team on November 30, 2021 indicating concerns that the system had shut down and was not restarting. Due to close proximity, research staff planned to visit the location to troubleshoot the issue, but before arriving, it was communicated that the system was back up and running. This was a miscommunication, and through follow up it was determined that the TV was not running. A visit to the location on January 4, 2022 fixed the problem quickly by changing the input back to HDMI 1. Note that this occurred between the time periods for surveying.

Appendix A: Final Storyboard #1






Trivia Check-In!
In a crash, an unhelmeted motorcyclist is __ percent more likely to suffer a fatal head injury and 15 percent more likely to suffer a nonfatal injury then a helmeted motorcyclist?
a. 15
b. 30
c. 40
d. 60
Source: NHTSA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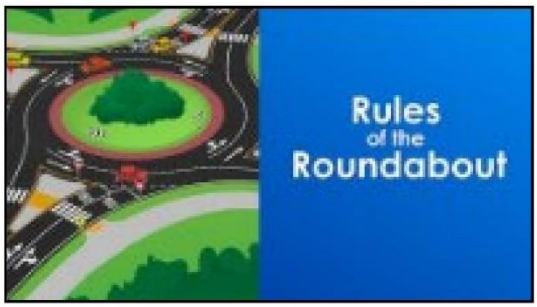
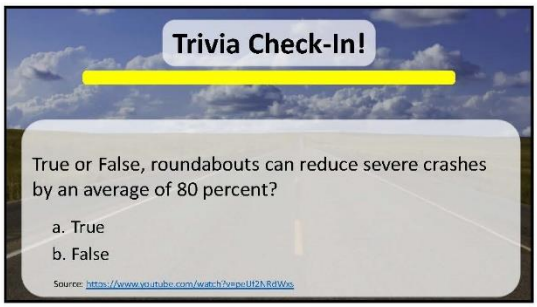
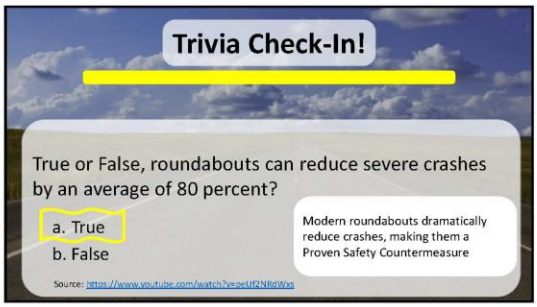
a. 15
b. 30
c. 40
d. 60
Source: NHTSA


SEE THESE?
NHTSA
POLICE
DO THIS.
MOVE OVER
MOVE OVER FOR EMERGENCY VEHICLES
#MOVEOVER
MOVE OVER
It's the Law


Rules
of the
Roundabout


Trivia Check-In!
True or False, roundabouts can reduce severe crashes by an average of 80 percent?
a. True
b. False
Source: https://www.youtube.com/watch?v=pieUf2kRdWo


Trivia Check-In!
True or False, roundabouts can reduce severe crashes by an average of 80 percent?
a. True
b. False
Modern roundabouts dramatically reduce crashes, making them a Proven Safety Countermeasure
Source: https://www.youtube.com/watch?v=peUfZNRdWxs


Did you make an appointment at MTRealID.com?

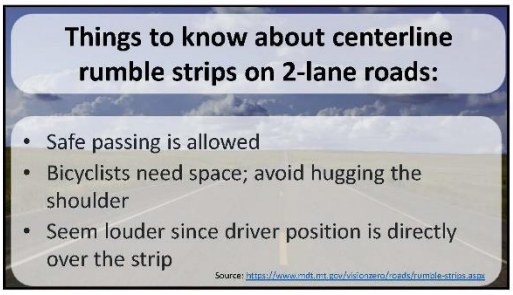

I'm ready.
Ok, on my way.
Delivered
Thanks Mom.
Appreciate the sober ride home.
0:04 / 0:30

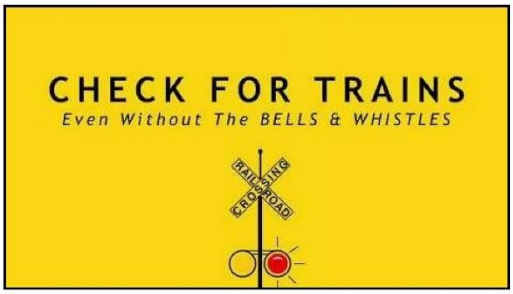

WHAT WILL A DUI COST YOU?
death
serious injury
incarceration
job loss
search warrants
probation
court fines
Its MORE than just a traffic fine.
attorney fees
treatment
no access to Canada
embarrassment
loss of independence
name in local newspaper

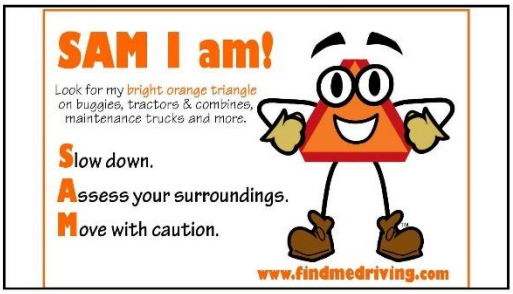

Experience


Thank You!
The Montana Department of Transportation would like to thank the following agencies for the use of their materials:
• CAA South Central Ontario
• Colorado Department of Transportation
• Emergency Responder Safety Institute
• Federal Highway Administration
• Montana Department of Justice
• National Highway Traffic Safety Administration
• New York State Department of Transportation
VISION ZERO
zero deaths · zero serious injuries
MDT

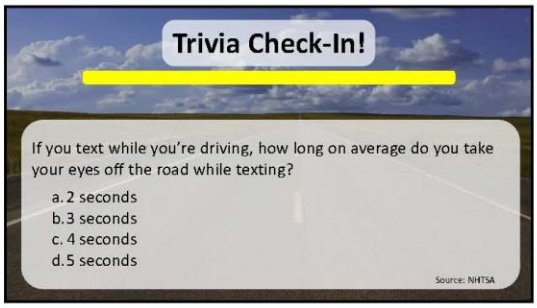
Appendix B: Final Storyboard #4

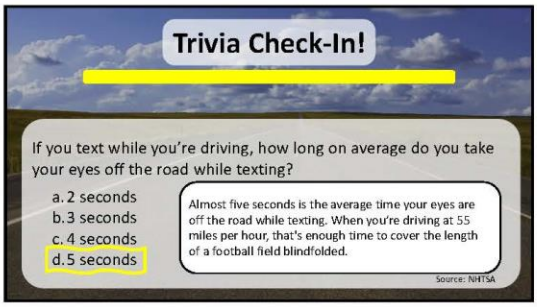




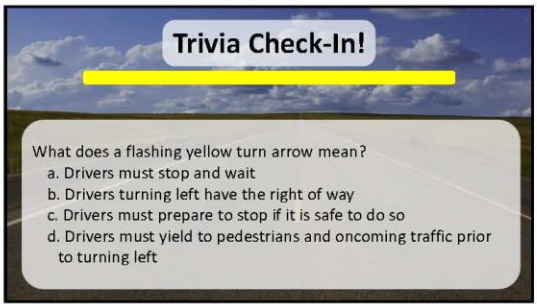


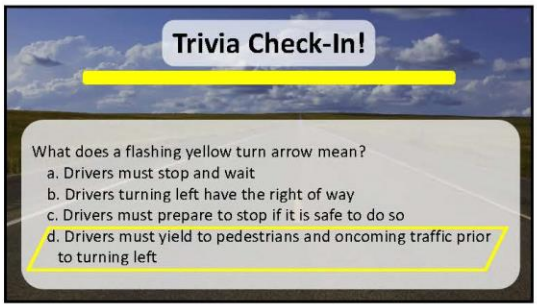

fresh Tortillas


Trivia Check-In!
If you text while you're driving, how long on average do you take your eyes off the road while texting?
a. 2 seconds
b. 3 seconds
c. 4 seconds
d. 5 seconds
Source: NHTSA


Trivia Check-In!
If you text while you're driving, how long on average do you take your eyes off the road while texting?
a. 2 seconds
b. 3 seconds
c. 4 seconds
d. 5 seconds
Almost five seconds is the average time your eyes are off the road while texting. When you're driving at 55 miles per hour, that's enough time to cover the length of a football field blindfolded.
Source: NHTSA


YIELD


Trivia Check-In!
What does a flashing yellow turn arrow mean?
a. Drivers must stop and wait
b. Drivers turning left have the right of way
c. Drivers must prepare to stop if it is safe to do so
d. Drivers must yield to pedestrians and oncoming traffic prior to turning left


Trivia Check-In!
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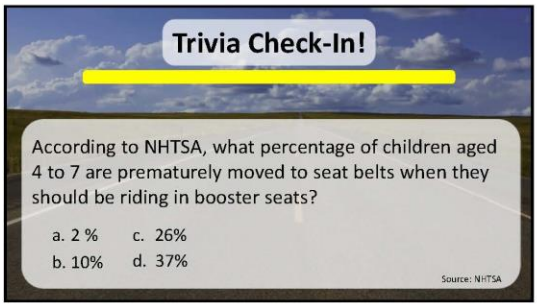
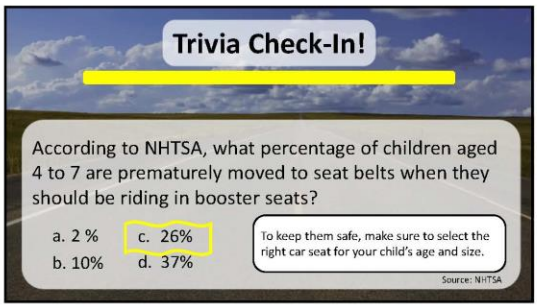
a. Drivers must stop and wait
b. Drivers turning left have the right of way
c. Drivers must prepare to stop if it is safe to do so
d. Drivers must yield to pedestrians and oncoming traffic prior to turning left


How many deaths on our roads are an acceptable number?
The answer is always the same.
www.ruralsafetycenter.org
Source: https://www.nsc.org/road-safety/get-involved/road-to-zero


If you love them enough to crawl into a playplace


Trivia Check-In!
According to NHTSA, what percentage of children aged 4 to 7 are prematurely moved to seat belts when they should be riding in booster seats?
a. 2 %
c. 26%
b. 10%
d. 37%
Source: NHTSA


Trivia Check-In!
According to NHTSA, what percentage of children aged 4 to 7 are prematurely moved to seat belts when they should be riding in booster seats?
a. 2 %
c. 26%
b. 10%
d. 37%
To keep them safe, make sure to select the right car seat for your child's age and size.
Source: NHTSA


TELL THEM YOU WERE RUNNING LATE.
THEY'LL UNDERSTAND.
SPEEDING


Thank You!
The Montana Department of Transportation would like to thank the following agencies for the use of their materials:
• Clackamas County
• Colorado Department of Transportation
• Connecticut Department of Transportation
• Find Me Driving
• Montana Department of Justice
• National Center for Rural Road Safety
• National Highway Traffic Safety Administration
VISION ZERO
zero deaths - zero serious injuries
MDT

Appendix C: Permission Form

Form: Request for Permission for Use of Copyright Material

Date:_____

Name:_____

Address:_____

Phone:_____ **Email:**_____

1. As the Licensor, you hereby grant the Montana Department of Transportation (collectively referred to herein as "MDT") permission to use the following material:

   Title:_____

   (the "Material")

   Web link:

   in the work entitled "*Effectiveness of Highway Safety Public Education at Montana Motor Vehicle Division and Vehicle Registration Stations by Streaming a Variety of Safety Content*" (the "Work")

(a) for worldwide distribution
(b) in all formats and platforms in any and all media now known or hereafter developed
(c) for non-commercial gain and
(d) in advertisements and promotional materials for the Work

2. You represent that

(a) you are the sole owner of all copyright, trademark, and other intellectual property and proprietary rights in and to the Material;
(b) publication of the Material as authorized herein will not violate or infringe any copyright, trademark, or other intellectual property or proprietary right of any person or entity;
(c) content and statements in the Material indicated as fact are true or based upon generally accepted professional research practices;
(d) you are not a party to and the Material is not subject to any contract or arrangement which would conflict with your permission herein;

3. You agree to indemnify and hold MDT harmless from any claim arising out of any breach or alleged breach of the above-mentioned representations.

4. This agreement shall be governed by and interpreted in accordance with the copyright laws of the United States.

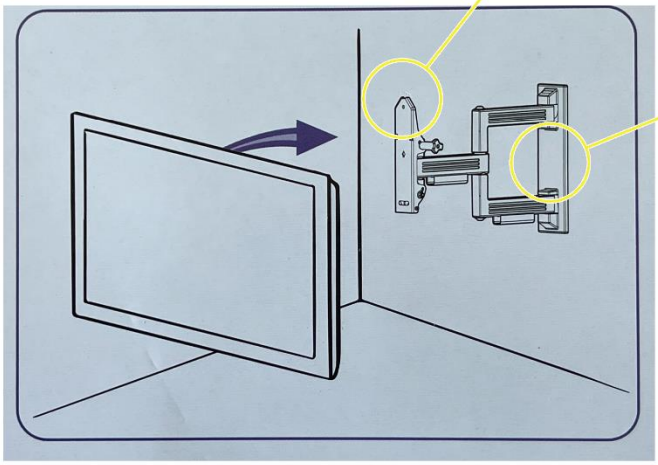
I hereby grant permission for the use of the material requested above.

Name:_____

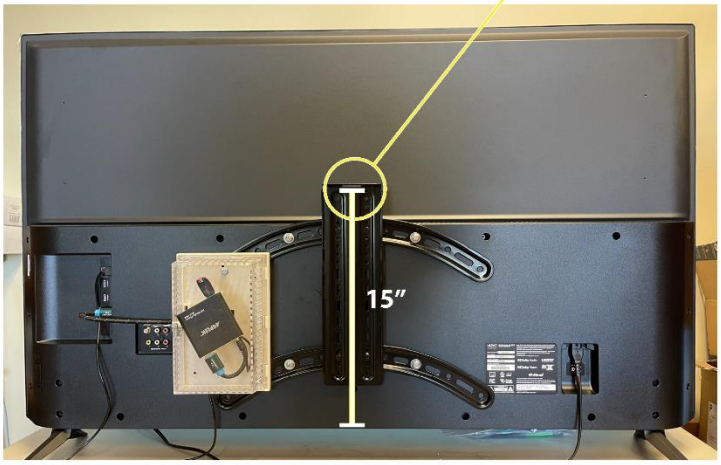
Signature: _____ **Date:**_____

Appendix D: Guide TV Wall Mount

TV hanging point between wall plate and TV bracket



50" TV
Height 26"
Width 44"



TV base to bracket attachment point **15"**

Top hole for mounting the plate to the wall

Example:
Base of TV to be at 48".
Top hole for mounting plate to the wall should be at 48" + **15"** from the floor.

Appendix E: Guide Video System Operation

Video Display System Operating Instructions.

In case of any issues with operating the video display system, please contact the following project personnel.

Neil Hetherington
Email: hetherington@montana.edu Ph: 406-581-7681

System Start Up and Operation

- This start up process may not be necessary if the system has already been in operation. The video will usually start playing as soon as power to the TV is turned on.
- There is no audio track on the safety video loop, so using the volume or mute buttons will have no effect. The captions will always display as they are "burned" into the video.
- Please note that there are two remote controls on for the TV and one for the media player.

1. Power up the TV

a. While pointing the TV remote towards the lower left corner of the TV, press the power button.

- Power on is indicated by the LED light at the bottom right corner of the TV.

2. Select TV input

a. Press the input button on the TV remote repeatedly until HDMI 1 is selected.

- The media player should power up and start playing the video automatically. If not, the following will be displayed on the TV.

- If this is this case, please continue with the next step(s).

3. Power up the media player

a. While pointing the **media player remote** towards the back of the TV, press the RED power button.

- If the media player does not automatically start playing the video, the following will be displayed on the screen, please continue with the next step(s).

4. Select Movie

a. either by using the arrow selection button, or
b. the MOVIE button on the media player remote.
c. press the OK button on the remote to confirm selection.

5. Select media

a. Select USB Device using the up down arrow buttons on the remote.
b. Press OK to confirm the selection

c. Select media folder displayed on the screen using the OK button.

d. Select the video file (SafetyVideo_SB4-20220403.mp4)
e. Press the OK button on the remote to confirm selection.

- The video name may be different after the system is installed, or a different file is provided.
- The video should start playing.

6. Verify video playback

a. If the screen displays "Resume Playback" select either Yes or No.

- If no action is taken within ~45 seconds, the media player will automatically do whichever option was already selected.

7. Play video as a continuous loop

a. Press the repeat button until "**Repeat One**" is displayed.

- No other action is required for this to take effect.

Additional Notes:

- When not active, the media player will time-out after one minute. Press any button on the media player remote to reactivate (except the power button).
- After the system has already been in operation, it should only take powering on the TV to have the video loop play automatically.
- If, due to a power outage, or other complete power down situation, follow the complete start up instructions.

Troubleshooting:

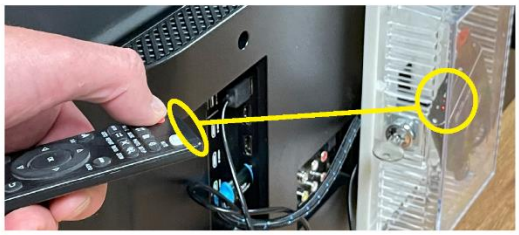
The following covers some basic issues that may occur during operation. The list is not extensive, if an issue occurs that is not indicated here, or cannot be resolved please do not hesitate to contact the project personnel listed on the previous page.

1. TV does not power on.

a. Check all power connections between the wall socket, extension cord and the TV.
b. Check that there is power to the wall socket.
c. Attempt to power on the TV using the power button on the back of the TV.
d. Check the batteries in the TV remote control.

2. Media player does not respond to the media player remote control.

a. Check the line of site view between media player remote and the front of the media player.



b. Check connection to USB power between the back of the TV and the media player.

c. Check the batteries in the media player remote control.

3. USB thumb drive does not display as a media option for playing video.

a. Open the lock box and verify that the thumb drive is fully inserted.
b. Remove and reinsert the thumb drive.

4. HDMI "input1" does not display the media player options.

a. Check that the media player is powered on. (Step 3 page 1)
b. Check the connections of the HDMI cable between the media player and the TV.